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10/784,158	02/24/2004	Masahiro Hagihara	1785.1007	8286

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EXAMINER	
ROSS, DANA	

ART UNIT	PAPER NUMBER
3722	

DATE MAILED: 12/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/784,158	HAGIHARA ET AL.	
	Examiner	Art Unit	
	Dana Ross	3722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 November 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) *4-10* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/16/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of the species restriction in the reply filed on 25 November 2005 is acknowledged. Applicant has elected the prosecution of Species I, claims 1-3. The traversal is on the ground(s) that Applicant asserts there is only **one disclosed species** shown in the drawings.

This is not found persuasive because of several reasons.

Applicant has requested Examiner to identify the claims which correspond to each species so that Applicant can petition the Restriction Requirement.

Examiner notes, it is Applicant's responsibility to know which claims belong to each species.

Applicant has claimed there is only **one** Species found in Applicant's disclosure, specifically stating that the drawings are not "separate species, but separate views of the same species".

It is noted that Applicant did not dispute the Embodiment shown in Figure 3 as being different from the other embodiments.

In an effort to expedite prosecution, Examiner has provided the following *examples* of the different Embodiments Examiner has found in the drawings to help Applicant in the prosecution of the Application:

For a first example, Applicant is referred to Applicant's disclosure Page 16, lines 13-18, which states "As the procedure for location the rotation member 42 is similar to that described

above except that the locating member 45 is used in place of the locating member C or 35 (in Figs. 2A and 2B or in Figs. 3A and 3B, respectively), a description of this procedure is omitted."

Applicant is referred to Figures 2A and 2B which is an Embodiment for Mounting and Demounting a Tool Tip and shows the "Tool Tip Changing Mechanism 30" with "Locating Member C" and "Rotatable Member A".

Figure 4 shows an Embodiment for Mount and Demounting a Tool Tip and shows "Tool Tip Changing Mechanism 30" with "Locating member 45" and "Rotatable Member 42". This Figure shows an embodiment with different reference numbers and different location of the parts.

Figure 4 shows "Cleaning Means 46", whereas Figures 2A and 2B do not.

It is noted that the Locating Members, C and 45, shown in drawings are located in different locations and given different reference numbers, indicating differences in their embodiments and are disclosed separately in Applicant's disclosure. The Rotatable Members, A and 42, shown in the drawings are given different reference numbers, indicating differences in their embodiments and are disclosed separately in Applicant's disclosure.

It is also noted that the "Rotating Member 32" of Figures 3A and 3B contains an Embodiment different from that shown on the "Rotating Member 42" of Figure 4.

Figure 2A shows "Holding Means B" for demounting. Figure 5A shows a different Embodiment for "Holding Means 43" for demounting. Applicant is referred to Applicant's Figure 5A that shows the "Rotating Member 42" with the "Holding Means 43" located on top of and above the Rotating Member 43. Figure 2A shows the "Holding Means B" located on the sides of the "Rotatable Member A", and not above the Rotatable Member.

Figure 2B show "Holding Means B" for mounting. Figure 6A shows a different Embodiment of "Holding Means 44" for demounting. Applicant is referred to Applicant's Figure 6A that shows the "Rotating Member 42" with the "Holding Means 44" located on top of and above the Rotating Member 43. Figure 2B shows the "Holding Means B" for mounting the same as "Holding Means B" for demounting, located on the sides of the "Rotatable Member A", and not above the Rotatable Member.

Figures 2A and 2B do not disclose a "Cleaning Means". Figures 7 and 8 show two separate Embodiments of "Cleaning Means 46". For example, Applicant is referred to reference number 47C of the two different embodiments of the "Cleaning Means 46" in figures 7 and 8.

Figures 2A and 2B show "Holding Means 21", whereas Figures 9A and 9B show "Holding Means 43" with the Embodiment of Figure 5A's Holding Means 43 and the Embodiment of either Figure 7 or 8 for the Cleaning Means 46 of Nozzle 22. These features are not found in the Embodiment of Figures 2A and 2B.

Examiner hopes this clarifies the difference in the Embodiments shown in Applicant's drawings. Again, the above are *examples* only of the difference in the Embodiments of Applicant's invention.

The requirement is still deemed proper and is therefore made FINAL.

Claims 4-10 are withdrawn from further consideration.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by US Pat. No. 4,733,050 (Grafius, hereafter '050).

Regarding claim 1, '050 teaches an apparatus for automatically changing a tool tip 12 member from a robot, said robot operating in the condition that the tool tip member is threadedly mounted on a tool body 18 mounted on a robot arm 20 (see fig. 1, col. 4, lines 39-45, for example); a tip member changing jig 110 disposed in an operational area of the robot (see col. 5, lines 34-36 and fig. 1, for example); a controller for controlling the robot (see col. 5, lines 36-40, for example).

'050 teaches the base the jig 110 with, for example, bracket 132 and vertical plate 126 which both can be considered a "base member", and two members 38 and 40 supported by the bracket 132 and vertical plate 126, the loading spindle 138 rotatable through rotary motor 130, and unloading spindle 144 located at a position offset from the rotation axis of loading spindle 138, and the tip holding member of unloading spindle 140 adapted to hold the tool tip member 12 so that a central axis of relative rotation for threadedly mounting the tool tip member to the tool body extends substantially parallel to the rotation axis of loading spindle 138 and rotation of the tool tip member 12 with respect to the rotating member of the unloading spindle 138 is locked (see figure 11, col. 9, lines 26-49, for example).

Regarding claim 2, '050 teaches the controller controls the operation of the robot arm to move the tool body around the rotation axes of loading and unloading spindles while keeping the tool body in contact with the tool tip member held by the tip member holding means for mounting and demounting the tool tip member 12 (see col. 5, lines 32-40, for example).

Regarding claim 3, '050 teaches the robot arm controlled by a central processing unit which is capable of ascertaining the position of welding arm 10 to a reference location (see col. 4, lines 60-66, for example) and which controls the locating devices 128 and 146 (used to detect "rotational phase") (see col. 5, lines 36-43, and col. 9, lines 26-68, for example).

In the event Applicant does not agree that '050 teaches the locating devices and controller including "detecting a rotational phase" is well known in the art for use with a robotic machine tool, Applicant is referred to the below 35 USC 103 rejection.

4. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by US Pat. No. 4,845,834 (Watson, hereafter '834).

'834 teaches a tool clamping mechanism for a robot (see col. 1, lines 7-10, for example), a tip member jig (see figure 1), a base member (reference number 13 or 14), a rotating member (arm 10) supported about the base member about a rotation axis and with tool holding means 12 for holding the tool (tip member) and disposed at a position that is offset from the rotation axis of the rotating member (arm 10) (see figures 1 and 2, col. 3, lines 6-25, for example); the tool holding means 12 hold the tool so that a central axis of relative rotation extends substantially parallel to the rotation axis and rotation of the tool tip member with respect to the rotating member is locked (see col. 4, lines 8-26, for example).

It is noted that though '843 does not expressly disclose a "controller for controlling operation of said robot", Examiner notes that it is inherent in the machine tool art that when a robot, or any machine, is used in the machining process, as is currently taught by '843, a generic "controller" of some form must be present to operate the machine/robot.

In the event Applicant does not agree that a "controller" is well known in the art for use with a robotic machine tool, Applicant is referred to the below 35 USC 103 rejection.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over '050.

'050 teaches all aspects of claim 1 as is discussed above.

'050 is silent as to detecting the phase rotation.

Examiner notes that it is notoriously well known in the art for robots to detect the phase rotation as is evidenced by Applicant's Admitted Prior Art (see disclosure page 10, lines 19-23) which states "Generally, robots must recognize a phase rotation".

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the operation of the robot as taught by '050 to include the well known feature of determining the phase rotation for the purpose of correctly and accurately aligning the tool with the tool changer for efficient machining.

7. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over '834 in view of '050.

8. Regarding claim 1, '834 teaches all aspects of claim 1 as is discussed above.

'834 is silent as to the use of a controller with the robot.

'050 teaches it is well known in the art to us a programmable controller with a robot (see col. 4, lines 60-66, for example).

Regarding claim 2, '050 teaches the controller controls the operation of the robot arm to move the tool body around the rotation axes of loading and unloading spindles while keeping the tool body in contact with the tool tip member held by the tip member holding means for mounting and demounting the tool tip member 12 (see col. 5, lines 32-40, for example).

Regarding claim 3, '050 teaches the robot arm controlled by a central processing unit which is capable of ascertaining the position of welding arm 10 to a reference location (see col. 4, lines 60-66, for example) and which controls the tool changer, and with the rotation and locating of the tool with the tool changer would include detecting the rotational phase (see col. 5, lines 36-43, and col. 9, lines 26-68, for example).

Furthermore, Examiner further notes that detecting of rotational phase is well known in the art as is evidenced by Applicant's Admitted Prior Art (see disclosure page 10, lines 19-23) which states "Generally, robots must recognize a phase rotation".

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the operation of the generic robot as taught by '834 to include the well known feature of determining the phase rotation for the purpose of correctly and accurately aligning the tool with the tool changer for efficient machining.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the generic robot as taught by '834 to include the specific robot with controller as taught by '050 for the purpose of providing a robotic welding arm that is controlled by a central processing unit which is capable of ascertaining the position of the welding arm by reference to a reference location and moving the welding arm in response to programmed movement instructions and controlling the feed and retraction of the tool (see '050, col. 4, lines 60-66, for example).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dana Ross whose telephone number is 571-272-4480. The examiner can normally be reached on Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Boyer Ashley can be reached on 571-272-4502. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dana Ross
Examiner
Art Unit 3722

dmr